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MYOCARDIAL ISCHEMIA AND INFARCTION

PREDICTING MAJOR ADVERSE CARDIAC EVENTS AND INFARCT SIZE USING ST-SEGMENT RESOLUTION AS A CONTINUOUS RATHER THAN A DICHOTOMOUS VARIABLE IN PATIENTS ACHIEVING THROMBOLYSIS IN MYOCARDIAL INFARCTION FLOW GRADE III AFTER PRIMARY PERCUTANEOUS CORONARY INTERVENTION FOR ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION

ACC Poster Contributions
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Background: ST-segment resolution (STR) has been consistently correlated with clinical outcomes and other biomarkers in ST-segment elevation myocardial infarction (STEMI) patients. The frequently used dichotomous STR (DSTR) has never been compared with STR as a continuous variable (CSTR) or investigated in patients achieving TIMI-3 flow after primary PCI. We investigated DSTR vs. CSTR as predictor of major adverse cardiac events (MACE) or final infarct size (IS) in a cohort undergoing primary PCI.

Methods: We analyzed all 238 patients from the CASTEMI study with primary PCI with available TIMI flow; day 5-7 99mTc-sestamibi IS; and 12-lead high fidelity digital Holter core lab D- and C-STR analysis. MACE was defined as 30 day mortality, re-myocardial infarction or congestive heart failure. DSTR was defined as >70% or <70% STR and CSTR as the % STR from prior peak ST level at 30 minutes after last contrast injection. DSTR and CSTR were compared in both univariable and multivariable logistic (MACE) and linear (IS) regression models.

Results: CSTR and DSTR each had significant univariable correlation with probability of MACE (Fig. 1A) and IS (Fig 1B) in TIMI-3 patients. CSTR was significantly more predictive for IS (p<0.001 vs. 0.28) and strongly trended towards significance MACE (p=0.099 vs. 0.48).

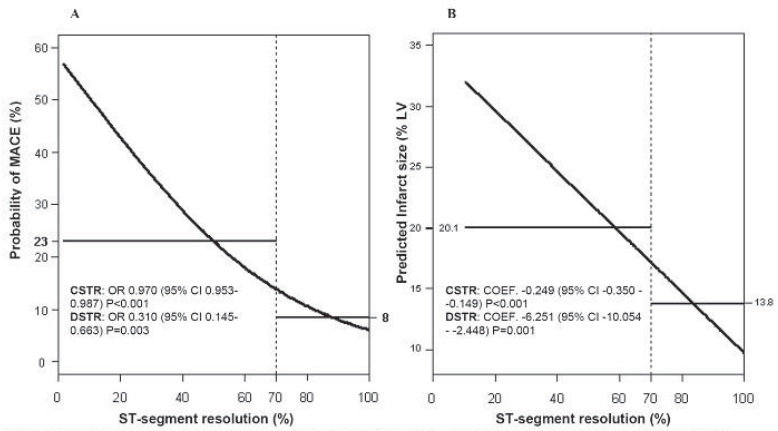

Figure 1. Panel A: Univariable logistic regression based estimated probability of MACE versus ST-segment resolution. Horizontal markers are estimated probabilities of MACE when STR is <70% and ≥70%; **Panel B**: Univariable linear regression based estimated probability of Infarct size versus ST-segment resolution. Horizontal markers are estimated probabilities of Infarct size when STR is <70% and ≥70%. CSTR, continuous ST-segment resolution; DSTR, dichotomous ST-segment resolution; OR, odds ratio; COEF, coefficient; CI, confidence interval.

Conclusion: CSTR outperforms DSTR as a prognostic marker for IS and MACE in patients with STEMI and post-procedural TIMI-3 flow, providing a significantly more robust surrogate end point for predicting clinical outcome.